

Thank you for your decision to inter-calibrate your research with the World Meteorological Organization [WMO] community.

Please note;

Purchaser **MUST** complete the following in this document or it can not be accepted. **Two original signed MOUs must be MAILED to the technical contact, Duane Kitzis, or the project can not be accepted or started.** We can not accept email or fax as a legal document. We can not accept revisions to this document.

Complete the following;

Purchaser, and Date, Invoice contact name and address on the header page.
Section 4, Description of standards including quantity and requested concentrations.

Name, telephone and complete shipping address of purchaser
Section 5, The technical and budgetary points of contact for this agreement
Section 6, Signature and signatory information.

If you have any questions email me, Duane Kitzis, duane.r.kitzis@noaa.gov
I can not accept the work to make your standards until I have received two signed hard copies of this completed document.

Duane R. Kitzis

National Oceanic and Atmospheric Administration (NOAA)
Global Monitoring Division (GMD)
Carbon Cycle Group
325 Broadway – R/GMD1
Boulder, CO 80305, USA
Phone: 303-497-6675
Fax: 303-497-6290
E-mail: duane.r.kitzis@noaa.gov
Web Site: <http://www.cmdl.noaa.gov/ccgg/>

MEMORANDUM OF UNDERSTANDING

THROUGH WHICH
[Name of purchaser]

IS PURCHASING
Trace Gas Air Standards

FROM

Global Monitoring Division (GMD)
U.S. DEPARTMENT OF COMMERCE

Agreement No. _____
Date: (_____)

Contact Name and Address that NOAA should send invoices to:

[Purchasers' invoice contact person]
[Title of purchasers' invoice contact person]
[Address where invoice should be sent to purchaser]
Phone: [phone number of purchasers' invoice contact person]
Fax: [fax number of purchasers' invoice contact person]
E-mail: [E-mail address of purchasers' invoice contact person]

Taxpayer ID number _____
Dun & Bradstreet number _____

1. PARTIES AND PURPOSE

This Memorandum of Understanding (MOU) establishes an agreement between [name of purchaser] (purchaser) and [Global Monitoring Division \(GMD\)](#)^[1], U.S. Department of Commerce (DOC), through which purchaser will pay GMD for calibrated trace gas air standards, including shipping and handling.

2. BACKGROUND

The GMD/[Carbon Cycle Greenhouse Gases Group \(CCGG\)](#)^[2] makes and calibrates reference gas cylinders for CO₂, CH₄ and CO for scientists worldwide. CCGG has demonstrated the long-term ability to maintain a calibration laboratory for its own historical measurement program. The ever-growing need for these standards has never been filled by a private company or corporation demonstrating this level of accuracy over time. Because of this, CCGG Group has become responsible for maintaining the World Meteorological Organization [WMO] mole fraction scales for CO₂, and well-characterized in house scales for CH₄, N₂O, SF₆ and CO, with the mission of propagating these scales for data intercomparison. High precision measurements of the trace gases CO₂, CH₄, N₂O, SF₆, and CO are being undertaken by many laboratories of various nations in order to better understand the biogeochemical cycles of these gases. There can be no integration of all these various measurement projects unless the data is all referenced to common well-defined calibration scales. The consistency required for optimally usable atmospheric CO₂ measurements and intercomparison must be no worse than 0.1 umol/mol for the northern hemisphere and 0.05 umol/mol in the southern hemisphere [World Meteorological Organization (WMO), 1993]. Because of stringent quality controls necessary for the measurement of long-lived trace gases, stable reference gas standards are an integral part of any long-term measurement program. The CCGG Group of GMD has been involved with making CO₂ standards since the early 1970s [Miller, 1974] and over the years has expanded to include methane, carbon monoxide, and the stable isotopes of CO₂. CCGG can fill and calibrate compressed gas cylinders for use as standard reference gases by other laboratories for measurements of CO₂, CH₄, CO, and the stable isotopes of CO₂ (C¹³ and O¹⁸).

3. AUTHORITY

The authorities for GMD to enter into this agreement are:

- (1) The "Special Studies" authority, 15 U.S.C. § 1525 (first paragraph), which permits DOC to provide, upon the request of any person, firm, or public or private organization (a) special studies on matters within the authority of the Department of Commerce, including preparing from its records special compilations, lists, bulletins, or reports, and (b) furnishing transcripts or copies of its studies, compilations, and other records.
- (2) 33 U.S.C. § 883d, which authorizes NOAA to increase engineering and scientific knowledge by conducting developmental work for the improvement of surveying and cartographic methods, instruments, and equipments; and to conduct investigations and research in geophysical sciences (including geodesy, oceanography, seismology, and geomagnetism).

4. TERMS AND CONDITIONS

All activities undertaken in this MOU are subject to the availability of appropriated funds.

GMD will achieve full cost recovery for the goods and services it is providing under this agreement.

Standards:

Unless otherwise stated, cylinder is size N150, 29.5 liter internal volume,
Ceodeux brass packless, GCA590 valved.

Standards will be delivered to;

[Name, telephone and complete shipping address of purchaser]

GMD will provide calibration of gases to purchaser who will pay GMD in advance for its services, based on the following price table:

SERVICE	COST	UNIT	QUANTITY	TOTAL
Aluminum cylinder filled	\$615.00	Each		
CO2 WMO scale NDIR Range 250-500 μ mol/mol. Informational 13C & 18O.	\$520.00	Each		
CO2 WMO scale NDIR Range 501-3000 μ mol/mol. Informational 13C & 18O.	\$610.00	Each		
CH4 RANGE 1500-2000 nmol/mol	\$330.00	Each		
CO RANGE 40-300 nmol/mol	\$330.00	Each		
Stable Isotopes of CO2 [C13 & O18]	\$330.00	Each		
N2O RANGE 100-360 nmol/mol, SF6 RANGE 1-10 pmol/mol	\$440.00	Each		
Calibration for CFCs by ECD	\$650.00	Each		
Calibration for halomethanes by GCMS	\$650.00	Each		

One recalibration after use is included in the calibration cost, EXCEPT for N2O/SF6. RECALIBRATION IS HIGHLY RECOMMENDED EVERY 2 YEARS FOR PRECISION WORK AND MUST AT LEAST BE PERFORMED AT THE END OF THE CYLINDER'S USE [25 atm pressure].

The cost for the additional recalibrations after the first two (2) years is \$220.00 each for all gases except N2O/SF6. (Contact GMD for costs of N2O/SF6 recalibrations):

SERVICE	COST	UNIT	QUANTITY	TOTAL
Recalibrations (after first two (2) years for all gases except N2O/SF6)	\$220.00	Each		

Return Shipping and handling. [Delivered duty unpaid^[3]]:

SERVICE	COST	UNIT	QUANTITY	TOTAL
Shipping and handling – U.S. Mainland	\$130.00	Each		
Shipping and handling – Outside the U.S. Mainland	\$250.00	Each		

TOTALS	AMOUNT DUE
TOTAL AMOUNT OF PAYMENT TO GMD	\$ USD

Logistics for services are:

4-6 weeks to fill.

4-6 weeks to calibrate per trace gas species.

Isotopes may take an additional 3 months.

Standard turn around time varies due to seasonal logistics and calibration queue.

Payment terms are: "PAYMENT IN ADVANCE OF WORK." [This means that you will be billed and expected to pay before GMD will send your shipment.]

To purchase from GMD, two original signed copies of this "Memorandum of Understanding", along with a check, or electronic payment/bank wire transfer (including IPAC for participating Federal Agencies), is required. Checks should reference project number "36R1MXXPPT (Kitzis) or 36R1MXXPJE (Hall)," be made payable to "U.S. Department of Commerce/NOAA," and mailed to the NOAA/GMD Budget Contact listed in the contact section below. Electronic payments/bank wire transfers should be made in accordance with Attachment A.

Purchase Orders (PO's) for non federal purchases under this agreement are optional. If a PO is sent, it **must** contain the following information:

- All costs shown in U.S. Dollars,
- All text in English,
- A clear "Bill To" and "Ship To" persons name with department, addresses, phone, fax and e-mail address,
- Statement of required materials,
- Employer Identification Number(s), or
- Taxpayer Identification Number (on USA MOU's only),
- Dun & Bradstreet Number(s),
- Treasury Account symbol (on all USA Federal MOU's),
- Accounting Data (on all USA Federal MOU's),
- Appropriation Code (on all USA Federal MOU's),
- Agency Location Code (on all USA Federal MOU's),
- 1Office of Management and Budget (OMB) MAX Code(s) (on all USA Federal MOU's)

5. CONTACTS

The technical points of contact for this agreement are:

Duane Kitzis
National Oceanic and Atmospheric Administration (NOAA)
Global Monitoring Division (GMD)
Carbon Cycle Group
325 Broadway – R/GMD1
Boulder, CO 80305, USA
Phone: 303-497-6675
Fax: 303-497-6290
E-mail: duane.r.kitzis@noaa.gov
Web Site: <http://www.cmdl.noaa.gov/ccgg/>

[Purchasers' technical contact person]

[Title of purchasers' technical contact person]
[Address of purchasers' technical contact person]
Phone: [phone number of purchasers' technical contact person]
Fax: [fax number of purchasers' technical contact person]
E-mail: [E-mail address of purchasers' technical contact person]

Fiscal and budgetary communications can be directed to:

Bill Cushman
Administrative Officer
NOAA/GMD1
325 Broadway – R/GMD
Boulder, CO 80305, USA
Phone: 303-497-6072
Fax: 303-497-6975
E-mail: Bill.Cushman@noaa.gov

[Purchasers' fiscal and budget contact person]
[Title of purchasers' fiscal and budget contact person]
[Address of purchasers' fiscal and budget contact person]
Phone: [phone number of purchasers' fiscal and budget contact person]
Fax: [fax number of purchasers' fiscal and budget contact person]
E-mail: [E-mail address of purchasers' fiscal and budget contact person]

The parties agree that if there is a change regarding the information in this section, the party making the change will notify the other party in writing of such change.

6. DURATION OF AGREEMENT, AMENDMENTS AND MODIFICATIONS

This agreement will become effective when signed by both parties. For N20/SF6 orders, the agreement will terminate when the purchaser receives the initial standards. For all other orders the agreement will terminate when the purchaser receives the standards after their first recalibration. The agreement may be amended at any time by mutual written consent of the parties.

Either party may terminate this agreement by providing 30 days written notice to the other party. In the event of termination, all amounts unexpended by GMD as of the date of GMD's receipt of a notice of termination from the purchaser, or as of the date of GMD's sending a notice of intent to terminate to the purchaser, shall be promptly refunded to purchaser, less any amounts required to close the account.

[Signature of person who has authority
to bind purchaser to the agreement]

[Typed name]

[Typed title]

[Typed name]

[Typed address]

Date

Mark E. Brown
Chief, Financial Officer/CAO
Office of Atmospheric Research
NOAA/DOC
Mail Code - R
1315 East West Highway
Silver Spring, MD 20910, USA

ATTACHMENT A

Please be sure to include within the funds transfer identifying information linking the payment to the invoice, i.e., GMD/NOAA, invoice #, Agreement #, and Project # as referenced in Part 4 of this agreement

The following are two choices to achieve funds transfers;

WIRE INSTRUCTIONS – TYPE 1000 Foreign or Domestic MOUs

TYPE 1000 THIRD PARTY FUNDS TRANSFER MESSAGE TO

TREAS NYC

<u>TAG NAME</u>	<u>TAG #</u>	<u>REQUIRED INFORMATION</u>
TYPE/SUBTYPE CODE	(1510)	1000
AMOUNT	(2000)	\$9,999,999.99
SENDER FI	(3100)	123456789 BANK XYZ (SENDER ABA# AND NAME)
SENDER REFERENCE	(3320)	(FILLED IN BY SENDER)
RECEIVER FI	(3400)	021030004 TREAS NYC
BENEFICIARY	(4200)	D 13140001 NOAA
ORIGINATOR TO BENEFICIARY INFO	(6000)	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX

SWIFT CODE FRNYUS33 can be used if required.

Federal Reserve Bank of New York
33 Liberty Street
New York, NY 10045

ACH Instructions

Only U.S. MOU Sponsors may use this;

How does EFT work? EFT operates through the Automated Clearing House (ACH) electronic payments network. Funds are transferred on the customer's (individual, agency or company) behalf from one financial institution to the U.S.

Department of Treasury through the ACH network. As our customer, **you are in control** because you initiate the electronic payment transaction known as an ACH Credit. In other words, you initiate the transfer from your bank account to NOAA's account with Treasury (**ABA/ROUTING TRANSIT NUMBER: 051036706 AND ACCOUNT: 540023 FOR Loan and Seafood Inspection or ABA/ROUTING TRANSIT NUMBER: 051036706 AND ACCOUNT: 540024 for Pollack Buyback**). In order to be sure that your payment is credited properly to your account, please include complete identifying information.